Amendments to the Specification:

On page 1, prior to the first paragraph which begins on line 4, please insert the following:

FIELD OF THE INVENTION

Please replace the first paragraph which begins on page 1, line 4 and which ends on line 16, with the following rewritten paragraphs:

The invention relates to an apparatus for determining and/or monitoring volume- and/or mass-flow, e.g. flowrate, of a medium flowing in a stream direction through a pipeline.

BACKGROUND OF THE INVENTION

The apparatus includes: At least two ultrasonic sensors, which are secured in a defined measuring positional relationship, i.e. in defined measuring positions, externally on the pipeline and which alternately emit and receive ultrasonic measuring signals; and a control/evaluation unit, which determines the volume- and/or mass-flow of the medium in the pipeline on the basis of the travel time difference of the ultrasonic measuring signals, in the stream direction, and opposed to the stream direction.

Please replace the paragraph which begins on page 1, line 31 and ends on page 2, line 6, with the following rewritten paragraph:

Known are clamp-on flow measuring devices in which the ultrasonic transducers are pressed externally onto the pipeline by means of a clamping lock. Clamp-on flow measuring devices are described, for example, in European patent EP 0 686 255 B1, US patent 4,484,478 or US patent 4,598,593. Additionally, it is known to apply the clamp-on measuring devices to the pipeline using chains, hook and loop bands (e.g. Velcro hook and loop bands), or screws. It is clear that the known methods for positioning ultrasonic sensors are rather time consuming.

On page 2, prior to the second paragraph which begins on line 7, please insert the following:

SUMMARY OF THE INVENTION

Please replace the paragraph which begins on page 2, line 11 and ends on line 22, with the following rewritten paragraph:

The object is achieved by providing that two ultrasonic sensors are secured to a pliers-like clamping unit embodied such that the ultrasonic sensors can be clamped onto the pipeline. Preferably, the pliers-like clamping unit is so constructed, that, after ~~the~~ clamping onto the pipeline, the two ultrasonic sensors find themselves automatically in the correct measuring positional relationship - and, indeed, largely independently of the outer diameter of the pipeline. The upper limit of the pipeline diameter is solely a matter of design and is a function, especially, of the achievable opening angle of the pliers-like clamping unit.

Please replace the paragraph which begins on page 3, line 26 and ends on page 4, line 5, with the following rewritten paragraph

As already mentioned above, it is important, in the case of clamp-on flow measuring devices, to take into consideration the wall thickness of the pipeline in ~~the~~ calculating ~~of~~ the travel times of the ultrasonic measuring signals. The wall thickness of the pipeline is either known, or it can be determined by means of ultrasound via an ultrasonic sensor. Therefore, in an advantageous embodiment of the apparatus of the invention, a compensating unit is provided, via which the wall thickness of the pipeline can be accounted for essentially automatically. To this end, a second rotation sensor and a length sensor are assigned to the compensating unit. The rotation sensor and the length sensor transmit their measured data to the control/evaluation unit.

On page 4, prior to the paragraph which begins on line 6, please insert the following:

BRIEF DESCRIPTION OF THE DRAWINGS

Please replace the paragraph which begins on page 4, line 6 and ends on page 4, line 7, with the following rewritten paragraph:

The invention will now be explained in greater detail on the basis of the appended drawing, the figures of which show as follows:

Fig. 1 a perspective view of a preferred form of embodiment of the ultrasonic flow measuring device of the invention;

Fig. 2 a cross section of the form of embodiment shown in Fig. 1;

Fig. 3 in cross section, a second form of embodiment of the ultrasonic flow measuring device of the invention;

Fig. 4 an elevational view of the form of embodiment shown in Fig. 3;

Fig. 5 a block diagram for the actuating of the flow measuring device of the invention;

Fig. 6 a schematic representation of the sound path of an ultrasonic measuring signal;

Fig. 7 a schematic drawing for determining the height displacement of the flow measuring device of the invention, in the case of compensating a wall thickness d;

Fig. 8 a schematic presentation of the apparatus of the invention in the case of compensation for a thin pipe wall d_1;

Fig. 9 a schematic presentation of the apparatus of the invention in the case of compensation for a thick pipe wall d_2; and

Fig. 10 a schematic presentation of the angle of the linkages of the pliers-like clamping unit in the case of a strongly refracting, measured medium.

On page 5, prior to the paragraph which begins on line 8, please insert the following:

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace the paragraph which begins on page 5, line 24 and ends on page 6, line 3, with the following rewritten paragraph:

In the illustrated case, the ultrasonic measuring signals are alternately emitted and received by the two ultrasonic sensors 16, 17. The two ultrasonic sensors 16, 17 are positioned on [[a]] the outer surface ~~element~~ 32 of the pipeline 2 extending parallel to the longitudinal axis 31 [[-]] ~~when, thus~~ [[,]] is that a maximum fraction of the measuring signals emitted from a first ultrasonic sensor of the ultrasonic sensors 16, 17 is received in the second ultrasonic sensor ~~17; 16~~. The two ultrasonic sensors 16, 17 are situated in a so-called two-traverse arrangement. The determining of the travel time difference of the ultrasonic measuring signals and the determining of the volume- or mass-flowrate is done in the control/evaluation unit 22.

Please replace the paragraph which begins on page 6, line 4 and ends on line 24, with the following rewritten paragraph:

The ultrasonic flow measuring device 1 of the invention can be applied to the pipeline 2 in the correct measuring position using a constructively very simple mechanism. Especially, the mechanism can be adapted, without problem, to largely arbitrary outer diameters of the pipeline 2. A prerequisite for this is, merely, to a first approximation, that the sound velocity, or the index of refraction, of the medium is known. Preferably, the mechanism is so embodied, that the correct measuring position is automatically achieved for different outer diameters of the pipeline 2. In the illustrated case, the mechanism is so embodied, that the clamping action is produced via the two ultrasonic sensors 16, 17, the holder 19, and the compression spring 8, which is arranged between the two lever arms 4, 5. Of course, it is also possible so to embody the ultrasonic measuring device 1 of the invention, that the ultrasonic sensors 16, 17 are mounted in their measuring positions in mutually opposing positions of the pipeline 2 in a so-called one-traverse arrangement.

Another variant of the arrangement is the so-called double, or more, one-traverse arrangement.

Please replace the paragraph which begins on page 6, line 25 and ends on page 7, line 2, with the following rewritten paragraph:

Consider Fig. 1 more closely. As already indicated, an essential component of the flow measuring device 1 of the invention is the pliers-like clamping unit 4, via which the ultrasonic sensors 16, 17 can be secured to the pipeline 3 in a simple manner. The clamping unit 4 is composed of a first portion 28 and a second portion 29 (Fig. 2). The first portion 28 has two lever arms 5, 6 arranged in a plane and journalled movably relative to one another via the pivot connection 7. The construction of the first portion 28 of the clamping unit 4 corresponds to the construction of a scissors or pliers; the second portion 29 essentially corresponds to the gripping portions of a pliers.